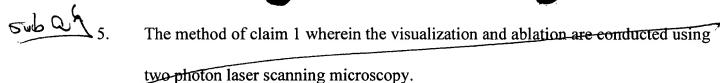
- (i) providing a recipient cell;
- 5 (ii) visualizing the nuclear material of the recipient cell using light in the near-infrared region;
 - (iii) enucleating the recipient cell;
 - (iv) introducing a donor nucleus into the recipient cell to produce a reconstructed zygote;
 - (v) activating the reconstructed zygote; and
 - (vi) allowing the reconstructed zygote to develop to term.
 - 2. The method of claim 1 in which the nuclear material of the recipient cell is visualized with near-infrared light using two photon laser scanning microscopy.
- 3. The method of claim 1 wherein the light has a wavelength from about 700 nm to about 1000 nm.
 - 4. The method of claim 1 wherein the recipient cell is enucleated through the use of laser-mediated ablation.



- 6. The method of claim 1, wherein the donor nucleus is genetically modified.
- 7. The method of claim 1, wherein the reconstructed zygote is transferred to a recipient oviduct.
- 8. The method of claim 1, wherein the culturing comprises ex ovo culture.
- 9. The method of claim 7 wherein the recipient cell and the donor nucleus are of the same species.
- 10. The method of claim 1, wherein the animal is an avian.
- The method of claim 10, wherein the cloned avian is selected from the group consisting of chickens, ducks, turkeys, quails, ostriches and pheasants.
 - 12. A cloned avian animal produced by the method of claim 10.
 - 13. The eloned avian animal of claim 12 which is genetically modified.

Syb 2 14. A method of producing a cloned non-human animal comprising the steps of:

- 15 (i) providing a recipient cell;
 - (ii) visualizing the nuclear material of the recipient cell using light in the nearinfrared region;

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(vii) activating the reconstructed zygote; and

(vi) allowing the reconstructed zygote to develop to term.

- 15. The method of claim 14, wherein the light has a wavelength that ranges from about 700 nm to about 1000 nm.
- 16. The method of claim 14, wherein the recipient cell nucleus is visualized using two photon laser scanning microscopy
- 17. The method of claim 14, wherein the recipient cell nucleus is enucleated using two photon laser scanning microscopy
- 18. The method of claim 14, wherein the recipient cell is visualized and enucleated using two photon laser scanning microscopy.

19. A method of producing a transgenic avian, comprising the steps of:

- 15 (i) providing an avian recipient cell,
 - (ii) visualizing the nuclear material of the recipient cell using light in the nearinfrared region;

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- (iii) enucleating the recipient cell;
- (viii) introducing a transgenic avian donor nucleus into the recipient cell to produce a reconstructed avian zygote;
- (ix) activating the reconstructed zygote; and
- 5 (vi) allowing the reconstructed zygote to develop to term.
 - The method of claim 19, wherein the transgene codes for a protein selected from the group consisting of human growth hormone, interferon, β-casein, α-1 antitrypsin, antithrombin III, collagen, factor VIII, factor IX, factor X, fibrinogen, hyaluronic acid, insulin, lactoferrin, protein C, erythropoietin (EPO), granulocyte colony-stimulating factor (G-CSF), granulocyte macrophage colony-stimulating factor (GM-CSF), tissue-type plasminogen activator (tPA), feed additive enzymes, somatotropin, and chymotrypsin.

A method for producing a protein, comprising:

- (i) producing a transgenic avian according to the method of claim 20 wherein the transgene encodes an exogenous protein, said protein deposited in the white of the developing eggs of said avian; and
- (ii) harvesting hard shell eggs; and
- (iii) isolating the exogenous protein from said eggs.

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- 22. The method of claim 21, wherein the exogenous protein is selected from the group consisting of human growth hormone, interferon, β-casein, α-1 antitrypsin, antithrombin III, collagen, factor VIII, factor IX, factor X, fibrinogen, hyaluronic acid, insulin, lactoferrin, protein C, erythropoietin (EPO), granulocyte colonystimulating factor (G-CSF), granulocyte macrophage colony-stimulating factor (GM-CSF), tissue-type plasminogen activator (tPA), feed additive enzymes, somatotropin, and chymotrypsin.
- 23. An intact hard-shell egg/containing protein exogenous to the egg.
- 24. A method of claim 19 wherein the avian is a knock-out or knock-in avian.
- 25. An intact hard-shell egg containing less then the normal complement of endogenous proteins found in the egg.
- 26. A reconstituted awian embryo prepared by transferring the nucleus of a donor cell into a suitable recipient cell.
- 27. An embryo of claim win which the donor cell is quiescent.

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